

LETTER REPORT
FOR
BOWERS BATTERY SITE
NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO
TDD: S05-0010-022
PAN: 0C2201SIXX
START DOCUMENT CONTROL NUMBER: START-05-23-050132

December 15, 2000



Prepared for:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Emergency Response Branch
77 West Jackson Boulevard
Chicago, Illinois 60604

Prepared by: Drew Pearce Date: 12/14/00
Drew D. Pearce, START Project Manager

Reviewed and
Approved by: Anne A. Busher Date: 12.14.00
Anne A. Busher, START Assistant Program Manager



ecology and environment, inc.

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ecology and environment, inc.

International Specialists in the Environment

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December 15, 2000

Ms. Gail Nabasny
START Project Officer
Emergency Response Branch
U.S. Environmental Protection Agency (SE-5J)
77 West Jackson Boulevard
Chicago, Illinois 60604

Re: Bowers Battery Site
New Philadelphia, Tuscarawas County, Ohio
TDD: S05-0010-022
PAN: 0C2201SIXX

Dear Ms. Nabasny:

On October 31, 2000, the United States Environmental Protection Agency (U.S. EPA) tasked the Ecology and Environment, Inc., Superfund Technical Assessment and Response Team (START) to conduct soil sampling activities and investigate a report from a resident of New Philadelphia, Ohio regarding buried car batteries which were observed while the resident was overturning soil in his back yard. START was tasked under Technical Direction Document (TDD) number S05-0010-022 to conduct site assessment, sampling, and documentation activities at the Bowers Battery Site. Under the direction of U.S. EPA Region 5, On-Scene Coordinator (OSC) Joe Fredle, site activities were conducted during November 1 through 2, 2000, and during November 7 through 11, 2000, by START members Drew Pearce, Hussein Aldis, and William Leslie.

Site Location and Background

The Bowers Battery Site (Site) encompasses four properties which are located at the intersection of 5th Street NW and Park Avenue NW in New Philadelphia, Tuscarawas County, Ohio. The geographical coordinates of the Site are latitude 40°29'54.5"N and longitude 81°27'10.0"W (Attachment A). The Site consists of four adjacent properties including the front and/or back yards of three residences and the gravel parking lot of a Veterans of Foreign Wars (VFW) Club (Attachment B). The overturned soil, where the batteries were originally observed, is located in

the back yard of 463 5th Street NW which is bordered by the rear parking lot for VFW Post 1445. The Site is bordered to the north by a light industrial property and the gravel parking lot (previously a railroad bed); to the east by a brick building; to the south by the gravel parking lot and two residences on Park Avenue NW, and to the west by 5th Street NW.

The resident at 463 5th Street NW observed the buried car batteries when a backhoe was utilized to overturn soil in his back yard in order to put in a garden. The Bowers Battery Company was previously located on the property of VFW Post 1445. The VFW Club occupies the only building that still remains on this property.

Site Activities

On October 31, 2000, following notification by a representative from the Ohio Environmental Protection Agency (EPA), OSC Fredle dispatched START to conduct soil sampling activities at the Site. On November 1, 2000, at approximately 1050 hours, START member Drew Pearce arrived on site at the gravel parking of the VFW Club. At approximately 1100 hours, OSC Fredle and START began designating soil sampling locations in the back yard of 463 5th Street NW surrounding the overturned soil. START inspected the overturned soil area and observed pieces of car batteries scattered throughout the soil. Initially, a total of 17 sampling locations were evenly spaced, approximately 15 feet apart, in the form of a ring around the overturned soil (Attachment B). START collected three separate soil samples from each location at the following depths: (A) 0 to 0.5 feet below ground surface (b.g.s.), (B) 0.5 to 1.5 feet b.g.s., and (C) 1.5 to 2.5 feet b.g.s. At every sampling location the soil collected from each depth interval was homogenized in a dedicated aluminum pan for each sample (A, B, and C). The Ohio EPA utilized an X-ray fluorometer (XRF) Spectrace 9000 in their on-site mobile laboratory to field screen the soil samples (split from the aluminum pans) for lead and mercury prior to the soil being placed into sampling containers. The results from this field screening by the Ohio EPA with the XRF instrument are shown in Attachment C (Soil Sampling Analytical Results). START member Pearce returned to the Site on November 2, 2000, and continued soil sampling activities. A total of 15 soil samples from the first 17 locations were sent to an off-site laboratory for confirmatory analysis for total lead and mercury (Attachment C).

On November 7, 2000, START members Pearce, Aldis, and Leslie returned to the Site to continue soil sampling activities. A second "ring" of sampling locations (i.e., RS-18 through 39), spaced approximately 15 feet apart, were positioned concentrically around the first "ring" of locations (Attachment B). Soil samples were collected at each of the three aforementioned depths from a total of six locations in the front yards of the two residential properties on 5th Street NW (Attachment B). Soil samples were also collected from a total of two locations near the foundations of both houses in the back yards. Additionally, four sampling transects or rays (i.e., NW, N, S and E) were delineated extending linearly away from the two rings of sampling locations around the overturned soil (Attachment B). Soil samples were collected from three locations along each of the four transects directed toward the northwest (NW), north (N), south (S), and east (E).

Analytical Results

XRF field screening and laboratory analytical results for soil samples collected by START during November 1 through 11, 2000, are shown in Attachment C. Concentrations of lead in the soil samples were as high as 18,000 parts per million (ppm) according to the laboratory results for total lead. Lead concentrations at each sampling location were the highest in the "A" and "B" depth intervals (i.e., 0 to 1.5 feet b.g.s.).

Sincerely,



Drew D. Pearce
START Project Manager

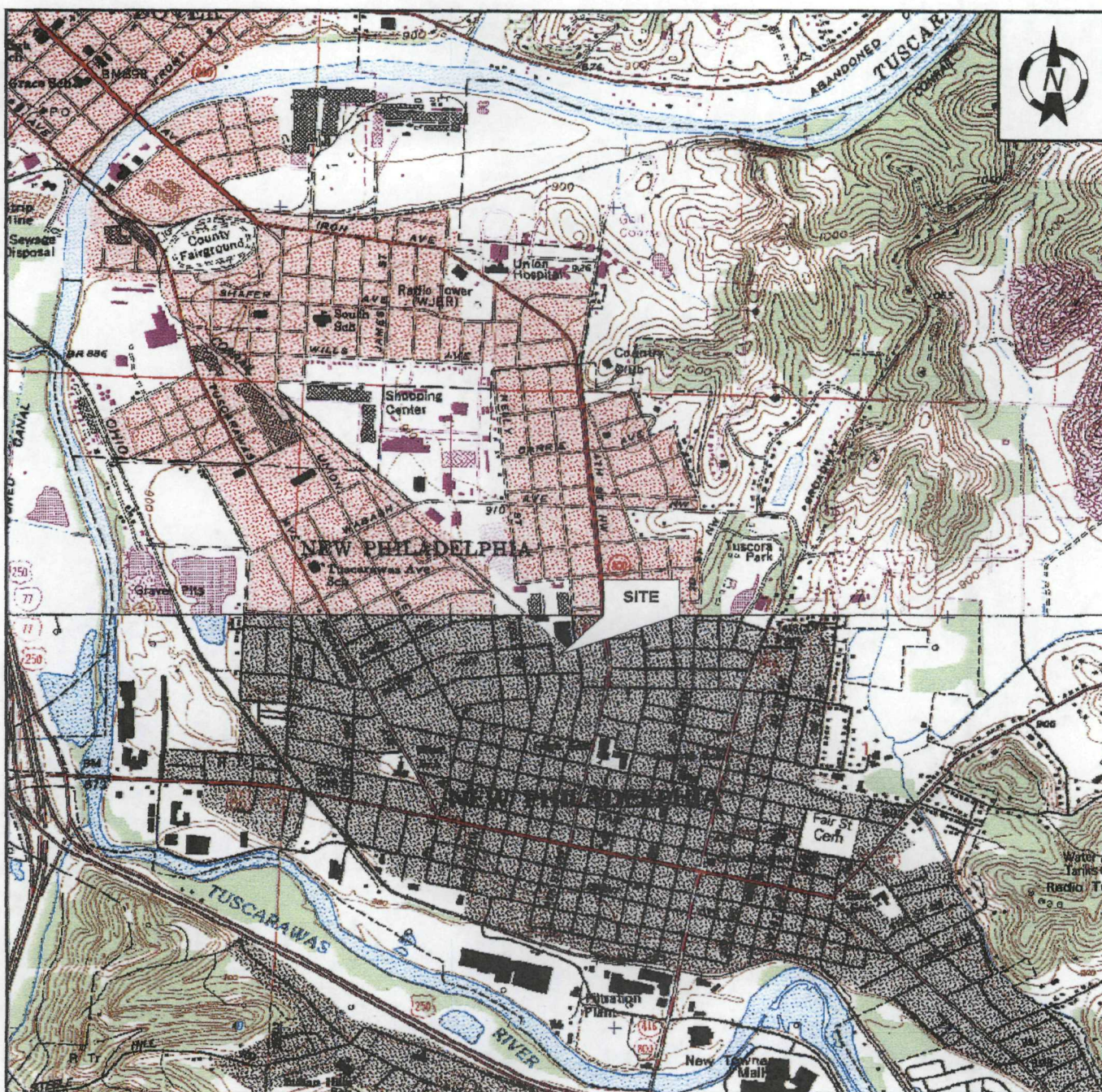


Anne A. Busher
START Assistant Program Manager

Attachments:	A	Site Location Map
	B	Site Features and Sampling Map
	C	Soil Sampling Analytical Results
	D	Photodocumentation

cc: Joe Fredle, U.S. EPA OSC, Westlake, Ohio
File

Attachment A
Site Location Map



Quadrangle Location



Ecology and Environment, Inc.

Region 5 - Superfund Technical Assessment and Response Team

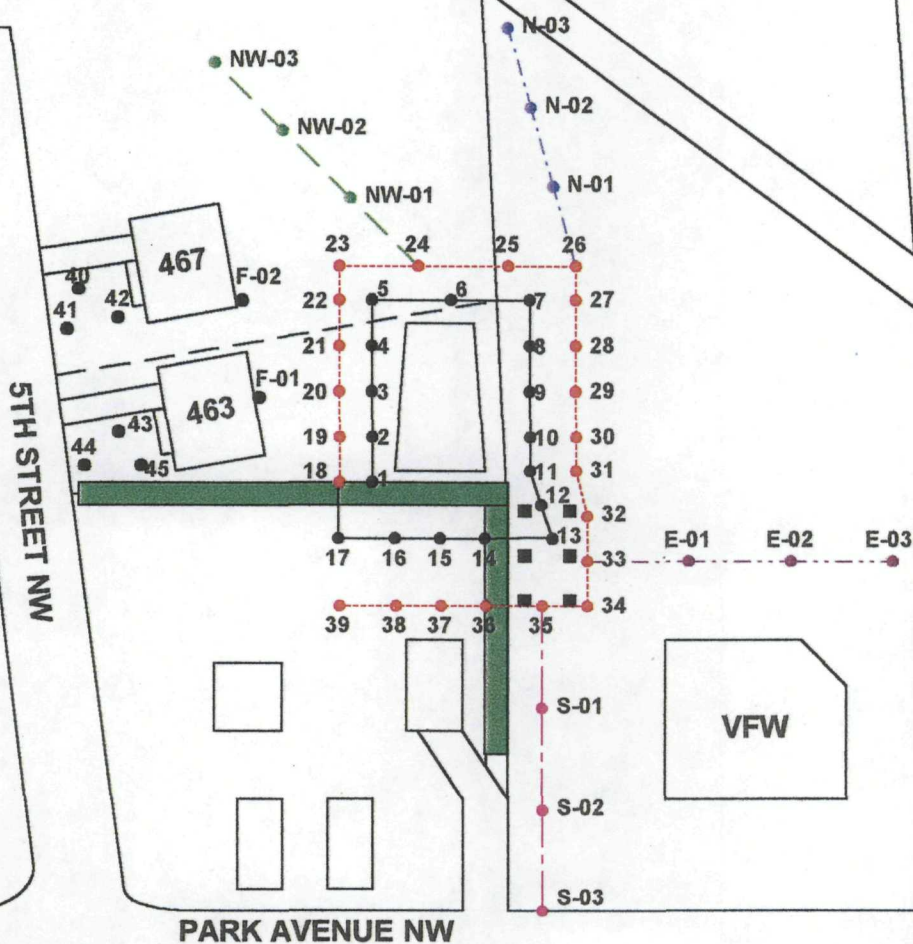
6777 Engle Road, Suite N

Middleburg Heights, Ohio 44130

TITLE:	Site Location Map	ATTACHMENT:	A
SITE:	Bowers Battery Site	SCALE:	Not to scale
CITY:	New Philadelphia	STATE:	Ohio
SOURCE:	USGS Topographic Map 7.5' Series New Philadelphia Quadrangle Ohio-Tuscarawas County	DATE:	1962
		REVISED:	1985

Attachment B

Site Features and Sampling Map



Quadrangle Location



Ecology and Environment, Inc.

Region 5 - Superfund Technical Assessment and Response Team

6777 Engle Road, Suite N

Middleburg Heights, Ohio 44130

TITLE:	Site Features and Sampling Map	ATTACHMENT:	B
SITE:	Bowers Battery Site	SCALE:	Not to scale
CITY:	New Philadelphia	STATE:	Ohio
SOURCE:	USGS Topographic Map 7.5' Series New Philadelphia Quadrangle Ohio-Tuscarawas County	TDD:	S05-0010-022
		DATE:	1962
		REVISED:	1985

Attachment C
Soil Sampling Analytical Results

SOIL SAMPLING ANALYTICAL RESULTS

BOWERS BATTERY SITE NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO

Sample Collection Dates: November 1 through 11, 2000
(units = mg/kg for Total Metals; mg/L for TCLP Metals)

Analytical Method	Analytical Parameters	Sample Locations					
		RS-South	RS-Middle	RS-North	BB-RS-01A	BB-RS-01B	BB-RS-01C
XRF Spectrace 9000	Lead	375	3,520	385	5,032	3,455	118
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	NA	5,300	1,500	6,800 / 5,800	3,800	NA
	Mercury	NA	0.46	0.046	0.27 / 0.22	0.12	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

Key:

F - House foundation soil sample
mg/kg - Milligrams per kilogram
mg/L - Milligrams per liter
NA - Not analyzed
ND - Not detected
P - Post sample (VFW Club parking lot)
PL - VFW Club parking lot sample
RS - Residential soil sample
TCLP - Toxicity Characteristic Leachate Procedure

Sources: Ohio Environmental Protection Agency (XRF results) and CT&E Environmental Services, Inc., Ludington, Michigan, 2000

SOIL SAMPLING ANALYTICAL RESULTS							
BOWERS BATTERY SITE							
NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO							
Sample Collection Dates: November 1 through 11, 2000 (units = mg/kg for Total Metals; mg/L for TCLP Metals)							
Analytical Method	Analytical Parameters	Sample Locations					
		BB-RS-02A	BB-RS-02B	BB-RS-02C	BB-RS-03A	BB-RS-03B	BB-RS-03C
XRF Spectrace 9000	Lead	6,154	6,590	5,371 / 5,313	3,984	3,170	276 / 224
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	7,700	15,000	12,000	4,500	NA	NA
	Mercury	0.31	0.21	0.22	0.27	NA	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	200	NA	99.0	NA	NA
	Mercury	NA	ND	NA	ND	NA	NA

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NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO							
Sample Collection Dates: November 1 through 11, 2000 (units = mg/kg for Total Metals; mg/L for TCLP Metals)							
Analytical Method	Analytical Parameters	Sample Locations					
		BB-RS-04A	BB-RS-04B	BB-RS-04C	BB-RS-05A	BB-RS-05B	BB-RS-05C
XRF Spectrace 9000	Lead	3,189	3,812	2,552	3,890	2,545 / 2,509	35.5
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	3,900	4,100	NA	3,900	3,800	NA
	Mercury	0.29	0.30	NA	0.23	0.16	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	22.0	NA	NA	66.0	NA
	Mercury	NA	ND	NA	NA	ND	NA

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SOIL SAMPLING ANALYTICAL RESULTS							
BOWERS BATTERY SITE NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO Sample Collection Dates: November 1 through 11, 2000 (units = mg/kg for Total Metals; mg/L for TCLP Metals)							
Analytical Method	Analytical Parameters	Sample Locations					
		BB-RS-06A	BB-RS-06B	BB-RS-06C	BB-PL-07A	BB-PL-07B	BB-PL-07C
XRF Spectrace 9000	Lead	1,980	738	19.2	1,769 / 1,763	172 / 190	274 / 280
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	0.12
	Mercury	NA	NA	NA	NA	NA	ND

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SOIL SAMPLING ANALYTICAL RESULTS							
BOWERS BATTERY SITE NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO Sample Collection Dates: November 1 through 11, 2000 (units = mg/kg for Total Metals; mg/L for TCLP Metals)							
Analytical Method	Analytical Parameters	Sample Locations					
		BB-PL-08A	BB-PL-08B	BB-PL-08C	BB-PL-09A	BB-PL-09B	BB-PL-09C
XRF Spectrace 9000	Lead	318	856	46.8	933	226	34.0
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	3.40	NA	NA	NA	NA
	Mercury	NA	ND	NA	NA	NA	NA

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SOIL SAMPLING ANALYTICAL RESULTS							
BOWERS BATTERY SITE							
NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO							
Sample Collection Dates: November 1 through 11, 2000 (units = mg/kg for Total Metals; mg/L for TCLP Metals)							
Analytical Method	Analytical Parameters	Sample Locations					
		BB-PL-10A	BB-PL-10B	BB-PL-10C	BB-PL-11A	BB-PL-11B	BB-PL-11C
XRF Spectrace 9000	Lead	874	NA	NA	2,033 / 2,145	1,262	96.0
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	NA	1,200	NA	NA	NA	NA
	Mercury	NA	0.15	NA	NA	NA	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	21.0	NA	NA
	Mercury	NA	NA	NA	ND	NA	NA

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SOIL SAMPLING ANALYTICAL RESULTS

BOWERS BATTERY SITE NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO

Sample Collection Dates: November 1 through 11, 2000
(units = mg/kg for Total Metals; mg/L for TCLP Metals)

Analytical Method	Analytical Parameters	Sample Locations					
		BB-RS-14A	BB-RS-14B	BB-RS-14C	BB-RS-15A	BB-RS-15B	BB-RS-15C
XRF Spectrace 9000	Lead	2,444	6,221	128	1,030	778	13.1
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	NA	10,000	NA	NA	NA	NA
	Mercury	NA	0.32	NA	NA	NA	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

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SOIL SAMPLING ANALYTICAL RESULTS

BOWERS BATTERY SITE NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO

Sample Collection Dates: November 1 through 11, 2000
(units = mg/kg for Total Metals; mg/L for TCLP Metals)

Analytical Method	Analytical Parameters	Sample Locations					
		BB-RS-16A	BB-RS-16B	BB-RS-16C	BB-RS-17A	BB-RS-17B	BB-RS-17C
XRF Spectrace 9000	Lead	1,633	943	ND	1,020	325	40.9 / 37.1
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

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SOIL SAMPLING ANALYTICAL RESULTS							
BOWERS BATTERY SITE NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO Sample Collection Dates: November 1 through 11, 2000 (units = mg/kg for Total Metals; mg/L for TCLP Metals)							
Analytical Method	Analytical Parameters	Sample Locations					
		BB-RS-18A	BB-RS-18B	BB-RS-18C	BB-RS-19A	BB-RS-19B	BB-RS-19C
XRF Spectrace 9000	Lead	4,227	1,532	NA	2,109	2,397	32.6
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	9,300	NA	NA	NA	NA	43.0
	Mercury	0.81	NA	NA	NA	NA	ND
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

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SOIL SAMPLING ANALYTICAL RESULTS							
BOWERS BATTERY SITE NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO Sample Collection Dates: November 1 through 11, 2000 (units = mg/kg for Total Metals; mg/L for TCLP Metals)							
Analytical Method	Analytical Parameters	Sample Locations					
		BB-RS-20A	BB-RS-20B	BB-RS-20C	BB-RS-21A	BB-RS-21B	BB-RS-21C
XRF Spectrace 9000	Lead	3,991	6,618	807	3,563	3,086	8,634
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	NA	NA	560	NA	5,300 / 3,400	NA
	Mercury	NA	NA	0.053	NA	0.32 / 0.31	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

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SOIL SAMPLING ANALYTICAL RESULTS

BOWERS BATTERY SITE NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO

Sample Collection Dates: November 1 through 11, 2000

(units = mg/kg for Total Metals; mg/L for TCLP Metals)

Analytical Method	Analytical Parameters	Sample Locations					
		BB-RS-22A	BB-RS-22B	BB-RS-22C	BB-RS-23A	BB-RS-23B	BB-RS-23C
XRF Spectrace 9000	Lead	3,830	4,037	54.0	1,194	684	22.4
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	NA	NA	NA	2,400	NA	NA
	Mercury	NA	NA	NA	0.080	NA	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

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SOIL SAMPLING ANALYTICAL RESULTS							
BOWERS BATTERY SITE							
NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO							
Sample Collection Dates: November 1 through 11, 2000 (units = mg/kg for Total Metals; mg/L for TCLP Metals)							
Analytical Method	Analytical Parameters	Sample Locations					
		BB-RS-24A	BB-RS-24B	BB-RS-24C	BB-PL-25A	BB-PL-25B	BB-PL-25C
XRF Spectrace 9000	Lead	16,020 / 15,643	3,207	52.0	1,912	342	332
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	NA	NA	50.0	NA	NA	NA
	Mercury	NA	NA	ND	NA	NA	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

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BOWERS BATTERY SITE NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO

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Analytical Method	Analytical Parameters	Sample Locations					
		BB-PL-26A	BB-PL-26B	BB-PL-26C	BB-PL-27A	BB-PL-27B	BB-PL-27C
XRF Spectrace 9000	Lead	1,148	150	67.0	2,110	201	11.2 / 18.3
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	NA	140	NA	NA	NA	NA
	Mercury	NA	0.047	NA	NA	NA	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

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NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO							
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Analytical Method	Analytical Parameters	Sample Locations					
		BB-PL-28A	BB-PL-28B	BB-PL-28C	BB-PL-29A	BB-PL-29B	BB-PL-29C
XRF Spectrace 9000	Lead	757	187	14.7	661	233	ND
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	900	NA	NA	NA	NA	12.0
	Mercury	0.048	NA	NA	NA	NA	ND
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

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Sample Collection Dates: November 1 through 11, 2000 (units = mg/kg for Total Metals; mg/L for TCLP Metals)							
Analytical Method	Analytical Parameters	Sample Locations					
		BB-PL-30A	BB-PL-30B	BB-PL-30C	BB-PL-31A	BB-PL-31B	BB-PL-31C
XRF Spectrace 9000	Lead	500	408	19.3	1,090	253	40.2
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	NA	NA	NA	NA	190	NA
	Mercury	NA	NA	NA	NA	0.061	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

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Sample Collection Dates: November 1 through 11, 2000 (units = mg/kg for Total Metals; mg/L for TCLP Metals)							
Analytical Method	Analytical Parameters	Sample Locations					
		BB-PL-32A	BB-PL-32B	BB-PL-32C	BB-PL-33A	BB-PL-33B	BB-PL-33C
XRF Spectrace 9000	Lead	1,662	201	78.0	2,430 / 2,380	121	23.8
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	NA	NA	NA	1,600	NA	NA
	Mercury	NA	NA	NA	0.34	NA	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

Key:

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mg/kg - Milligrams per kilogram
mg/L - Milligrams per liter
NA - Not analyzed
ND - Not detected
P - Post sample (VFW Club parking lot)
PL - VFW Club parking lot sample
RS - Residential soil sample
TCLP - Toxicity Characteristic Leachate Procedure

Sources: Ohio Environmental Protection Agency (XRF results) and CT&E Environmental Services, Inc., Ludington, Michigan, 2000

SOIL SAMPLING ANALYTICAL RESULTS

BOWERS BATTERY SITE NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO

Sample Collection Dates: November 1 through 11, 2000

(units = mg/kg for Total Metals; mg/L for TCLP Metals)

Analytical Method	Analytical Parameters	Sample Locations					
		BB-PL-34A	BB-PL-34B	BB-PL-34C	BB-PL-35A	BB-PL-35B	BB-PL-35C
XRF Spectrace 9000	Lead	1,841	1,862	71.0	7,281	978	76.0
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	NA	NA	72.0	NA	NA	NA
	Mercury	NA	NA	ND	NA	NA	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

Key:

F - House foundation soil sample

mg/kg - Milligrams per kilogram

mg/L - Milligrams per liter

NA - Not analyzed

ND - Not detected

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PL - VFW Club parking lot sample

RS - Residential soil sample

TCLP - Toxicity Characteristic Leachate Procedure

Sources: Ohio Environmental Protection Agency (XRF results) and CT&E Environmental Services, Inc., Ludington, Michigan, 2000

SOIL SAMPLING ANALYTICAL RESULTS							
BOWERS BATTERY SITE							
NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO							
Sample Collection Dates: November 1 through 11, 2000 (units = mg/kg for Total Metals; mg/L for TCLP Metals)							
Analytical Method	Analytical Parameters	Sample Locations					
		BB-RS-36A	BB-RS-36B	BB-RS-36C	BB-RS-37A	BB-RS-37B	BB-RS-37C
XRF Spectrace 9000	Lead	1,220	3,832	8.20	7,528	3,993	18.7
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	NA	7,800	NA	NA	NA	NA
	Mercury	NA	0.25	NA	NA	NA	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

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 TCLP - Toxicity Characteristic Leachate Procedure

Sources: Ohio Environmental Protection Agency (XRF results) and CT&E Environmental Services, Inc., Ludington, Michigan, 2000

SOIL SAMPLING ANALYTICAL RESULTS							
BOWERS BATTERY SITE							
NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO							
Sample Collection Dates: November 1 through 11, 2000 (units = mg/kg for Total Metals; mg/L for TCLP Metals)							
Analytical Method	Analytical Parameters	Sample Locations					
		BB-RS-38A	BB-RS-38B	BB-RS-38C	BB-RS-39A	BB-RS-39B	BB-RS-39C
XRF Spectrace 9000	Lead	5,715	387	11.6	1,065	130	87.0
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	4,200 / 10,000	NA	NA	NA	NA	44.0
	Mercury	0.36 / 0.18	NA	NA	NA	NA	ND
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

Key:

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mg/kg - Milligrams per kilogram
mg/L - Milligrams per liter
NA - Not analyzed
ND - Not detected
P - Post sample (VFW Club parking lot)
PL - VFW Club parking lot sample
RS - Residential soil sample
TCLP - Toxicity Characteristic Leachate Procedure

Sources: Ohio Environmental Protection Agency (XRF results) and CT&E Environmental Services, Inc., Ludington, Michigan, 2000

SOIL SAMPLING ANALYTICAL RESULTS							
BOWERS BATTERY SITE							
NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO							
Sample Collection Dates: November 1 through 11, 2000 (units = mg/kg for Total Metals; mg/L for TCLP Metals)							
Analytical Method	Analytical Parameters	Sample Locations					
		BB-RS-40A	BB-RS-40B	BB-RS-40C	BB-RS-41A	BB-RS-41B	BB-RS-41C
XRF Spectrace 9000	Lead	112 / 100	246	677	106	358	13.9
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	NA	NA	NA	150	NA	NA
	Mercury	NA	NA	NA	0.055	NA	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

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 mg/L - Milligrams per liter
 NA - Not analyzed
 ND - Not detected
 P - Post sample (VFW Club parking lot)
 PL - VFW Club parking lot sample
 RS - Residential soil sample
 TCLP - Toxicity Characteristic Leachate Procedure

Sources: Ohio Environmental Protection Agency (XRF results) and CT&E Environmental Services, Inc., Ludington, Michigan, 2000

SOIL SAMPLING ANALYTICAL RESULTS BOWERS BATTERY SITE NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO Sample Collection Dates: November 1 through 11, 2000 (units = mg/kg for Total Metals; mg/L for TCLP Metals)							
Analytical Method	Analytical Parameters	Sample Locations					
		BB-RS-42A	BB-RS-42B	BB-RS-42C	BB-RS-43A	BB-RS-43B	BB-RS-43C
XRF Spectrace 9000	Lead	113	458	500	646	619 / 599	ND
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	NA	NA	710	NA	NA	NA
	Mercury	NA	NA	0.057	NA	NA	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

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- mg/L - Milligrams per liter
- NA - Not analyzed
- ND - Not detected
- P - Post sample (VFW Club parking lot)
- PL - VFW Club parking lot sample
- RS - Residential soil sample
- TCLP - Toxicity Characteristic Leachate Procedure

Sources: Ohio Environmental Protection Agency (XRF results) and CT&E Environmental Services, Inc., Ludington, Michigan, 2000

SOIL SAMPLING ANALYTICAL RESULTS							
BOWERS BATTERY SITE							
NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO							
Sample Collection Dates: November 1 through 11, 2000 (units = mg/kg for Total Metals; mg/L for TCLP Metals)							
Analytical Method	Analytical Parameters	Sample Locations					
		BB-RS-44A	BB-RS-44B	BB-RS-44C	BB-RS-45A	BB-RS-45B	BB-RS-45C
XRF Spectrace 9000	Lead	574	4,280	409	152	332	ND
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	NA	5,700	NA	NA	NA	NA
	Mercury	NA	0.070	NA	NA	NA	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

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 mg/L - Milligrams per liter
 NA - Not analyzed
 ND - Not detected
 P - Post sample (VFW Club parking lot)
 PL - VFW Club parking lot sample
 RS - Residential soil sample
 TCLP - Toxicity Characteristic Leachate Procedure

Sources: Ohio Environmental Protection Agency (XRF results) and CT&E Environmental Services, Inc., Ludington, Michigan, 2000

SOIL SAMPLING ANALYTICAL RESULTS							
BOWERS BATTERY SITE							
NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO							
Sample Collection Dates: November 1 through 11, 2000 (units = mg/kg for Total Metals; mg/L for TCLP Metals)							
Analytical Method	Analytical Parameters	Sample Locations					
		BB-NW-01A	BB-NW-01B	BB-NW-01C	BB-NW-02A	BB-NW-02B	BB-NW-02C
XRF Spectrace 9000	Lead	4,342 / 4,326	2,488	23.4	92.0	34.3	ND
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	NA	NA	NA	NA	30.0 / 32.0	NA
	Mercury	NA	NA	NA	NA	ND / ND	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

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 NA - Not analyzed
 ND - Not detected
 P - Post sample (VFW Club parking lot)
 PL - VFW Club parking lot sample
 RS - Residential soil sample
 TCLP - Toxicity Characteristic Leachate Procedure

Sources: Ohio Environmental Protection Agency (XRF results) and CT&E Environmental Services, Inc., Ludington, Michigan, 2000

SOIL SAMPLING ANALYTICAL RESULTS							
BOWERS BATTERY SITE							
NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO							
Sample Collection Dates: November 1 through 11, 2000 (units = mg/kg for Total Metals; mg/L for TCLP Metals)							
Analytical Method	Analytical Parameters	Sample Locations					
		BB-NW-03A	BB-NW-03B	BB-NW-03C	BB-N-01A	BB-N-01B	BB-N-01C
XRF Spectrace 9000	Lead	132	51.5	8.50	232	45.1	ND
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	NA	NA	NA	160	NA	NA
	Mercury	NA	NA	NA	0.052	NA	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

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 RS - Residential soil sample
 TCLP - Toxicity Characteristic Leachate Procedure

Sources: Ohio Environmental Protection Agency (XRF results) and CT&E Environmental Services, Inc., Ludington, Michigan, 2000

SOIL SAMPLING ANALYTICAL RESULTS

BOWERS BATTERY SITE NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO

Sample Collection Dates: November 1 through 11, 2000

(units = mg/kg for Total Metals; mg/L for TCLP Metals)

Analytical Method	Analytical Parameters	Sample Locations					
		BB-N-02A	BB-N-02B	BB-N-02C	BB-N-03A	BB-N-03B	BB-N-03C
XRF Spectrace 9000	Lead	243	52.3	25.8	347 / 338	79.0	ND
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	NA	NA	140	NA	NA	NA
	Mercury	NA	NA	ND	NA	NA	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

Key:

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NA - Not analyzed

ND - Not detected

P - Post sample (VFW Club parking lot)

PL - VFW Club parking lot sample

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TCLP - Toxicity Characteristic Leachate Procedure

Sources: Ohio Environmental Protection Agency (XRF results) and CT&E Environmental Services, Inc., Ludington, Michigan, 2000

SOIL SAMPLING ANALYTICAL RESULTS							
BOWERS BATTERY SITE							
NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO							
Sample Collection Dates: November 1 through 11, 2000 (units = mg/kg for Total Metals; mg/L for TCLP Metals)							
Analytical Method	Analytical Parameters	Sample Locations					
		BB-S-03A	BB-S-03B	BB-S-03C	BB-E-01A	BB-E-01B	BB-E-01C
XRF Spectrace 9000	Lead	3,407	691	21.8	674	130	ND
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	4,800	NA	NA	NA	NA	14.0
	Mercury	0.24	NA	NA	NA	NA	ND
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

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SOIL SAMPLING ANALYTICAL RESULTS							
BOWERS BATTERY SITE							
NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO							
Sample Collection Dates: November 1 through 11, 2000							
(units = mg/kg for Total Metals; mg/L for TCLP Metals)							
Analytical Method	Analytical Parameters	Sample Locations					
		BB-E-02A	BB-E-02B	BB-E-02C	BB-E-03A	BB-E-03B	BB-E-03C
XRF Spectrace 9000	Lead	479	94.0	10.5	288	256	17.7
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	NA	NA	NA	NA	250	NA
	Mercury	NA	NA	NA	NA	0.064	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

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 TCLP - Toxicity Characteristic Leachate Procedure

Sources: Ohio Environmental Protection Agency (XRF results) and CT&E Environmental Services, Inc., Ludington, Michigan, 2000

SOIL SAMPLING ANALYTICAL RESULTS							
BOWERS BATTERY SITE							
NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO							
Sample Collection Dates: November 1 through 11, 2000 (units = mg/kg for Total Metals; mg/L for TCLP Metals)							
Analytical Method	Analytical Parameters	Sample Locations					
		BB-F-01A	BB-F-01B	BB-F-01C	BB-F-02A	BB-F-02B	BB-F-02C
XRF Spectrace 9000	Lead	2,800	2,394	324	2,220	8,348	252
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	2,300	NA	NA	NA	NA	120
	Mercury	0.16	NA	NA	NA	NA	ND
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA	NA	NA

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 TCLP - Toxicity Characteristic Leachate Procedure

Sources: Ohio Environmental Protection Agency (XRF results) and CT&E Environmental Services, Inc., Ludington, Michigan, 2000

SOIL SAMPLING ANALYTICAL RESULTS					
BOWERS BATTERY SITE					
NEW PHILADELPHIA, TUSCARAWAS COUNTY, OHIO					
Sample Collection Dates: November 1 through 11, 2000					
(units = mg/kg for Total Metals; mg/L for TCLP Metals)					
Analytical Method	Analytical Parameters	Sample Locations			
		BB-P-01	BB-P-02	BB-P-03	BB-P-04
XRF Spectrace 9000	Lead	1,082	1,935	3,583	3,484
SW-846 Methods 6020 and 7471 (Total Metals)	Lead	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA
SW-846 Method 1311 (TCLP Metals)	Lead	NA	NA	NA	NA
	Mercury	NA	NA	NA	NA

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- TCLP - Toxicity Characteristic Leachate Procedure

Sources: Ohio Environmental Protection Agency (XRF results) and CT&E Environmental Services, Inc., Ludington, Michigan, 2000

Attachment D
Photodocumentation



SITE: Bowers Battery **TDD:** S05-0010-022 **PAN:** 0C2201SIXX **PHOTO:** 1
DATE: November 1, 2000 **DIRECTION:** South **PHOTOGRAPHER:** D. Pearce
SUBJECT: View of the overturned soil and the first six soil sampling locations in the back yards of 463 and 467 5th Street NW.



SITE: Bowers Battery **TDD:** S05-0010-022 **PAN:** 0C2201SIXX **PHOTO:** 2
DATE: November 1, 2000 **DIRECTION:** N/A **PHOTOGRAPHER:** D. Pearce
SUBJECT: View of the buried car batteries found in the back yard of 463 5th Street NW located in New Philadelphia, Ohio.



SITE: Bowers Battery **TDD:** S05-0010-022 **PAN:** 0C2201SIXX **PHOTO:** 3
DATE: November 1, 2000 **DIRECTION:** South **PHOTOGRAPHER:** D. Pearce
SUBJECT: View of the overturned soil and the first six soil sampling locations in the back yards of 463 and 467 5th Street NW.



SITE: Bowers Battery **TDD:** S05-0010-022 **PAN:** 0C2201SIXX **PHOTO:** 4
DATE: November 1, 2000 **DIRECTION:** South **PHOTOGRAPHER:** D. Pearce
SUBJECT: View of the rear gravel parking lot for VFW Post 1445 and soil sampling locations PL-07 through PL-13.



SITE: Bowers Battery

TDD: S05-0010-022

PAN: 0C2201SIXX

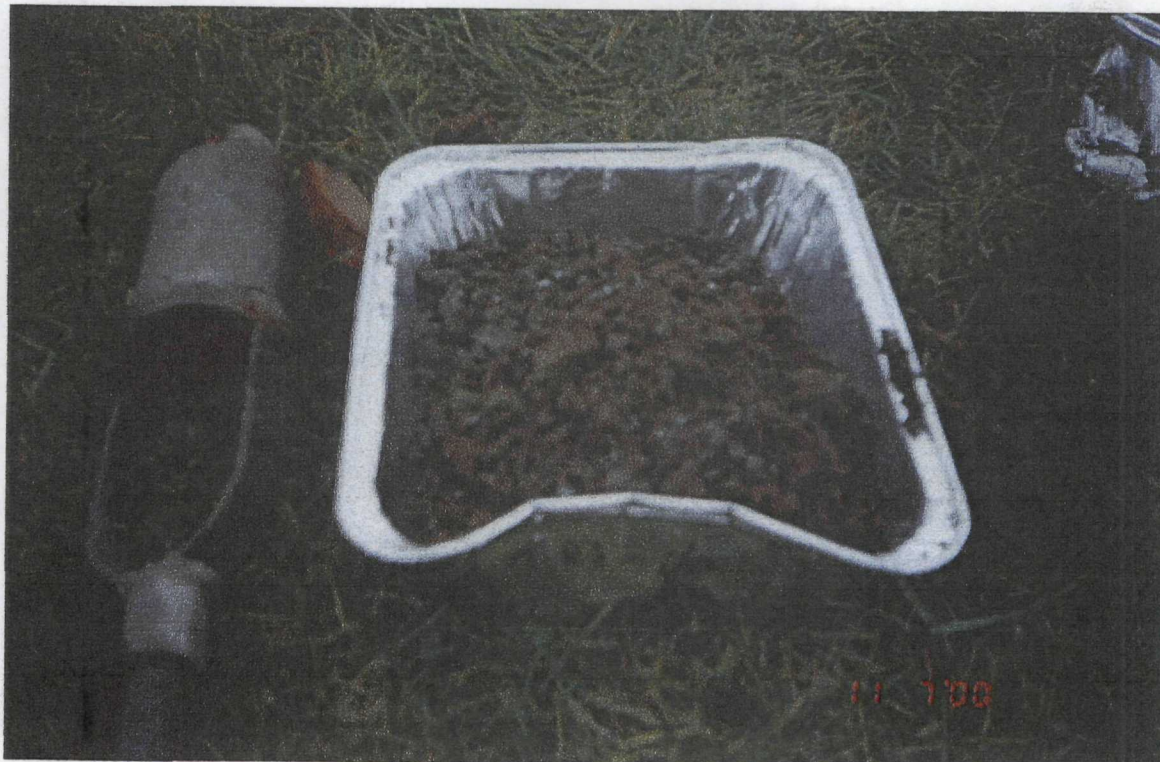
PHOTO: 5

DATE: November 2, 2000

DIRECTION: South

PHOTOGRAPHER: D. Pearce

SUBJECT: View of the support posts of the planned BBQ shelter for the VFW Club in the rear gravel parking lot.



SITE: Bowers Battery

TDD: S05-0010-022

PAN: 0C2201SIXX

PHOTO: 6

DATE: November 7, 2000

DIRECTION: N/A

PHOTOGRAPHER: D. Pearce

SUBJECT: View of soil sample BB-RS-03C in the back yard of 463 5th Street NW. (Note green-colored deposits in soil.)



SITE: Bowers Battery

TDD: S05-0010-022

PAN: 0C2201SIXX

PHOTO: 7

DATE: November 8, 2000

DIRECTION: South

PHOTOGRAPHER: D. Pearce

SUBJECT: View of START member utilizing a hand auger to collect soil from the "C" level at sampling location RS-19.



SITE: Bowers Battery

TDD: S05-0010-022

PAN: 0C2201SIXX

PHOTO: 8

DATE: November 8, 2000

DIRECTION: N/A

PHOTOGRAPHER: D. Pearce

SUBJECT: View of soil samples BB-RS-19A, B, and C in the back yard of 463 5th Street NW.



SITE: Bowers Battery **TDD:** S05-0010-022 **PAN:** 0C2201SIXX **PHOTO:** 9
DATE: November 10, 2000 **DIRECTION:** N/A **PHOTOGRAPHER:** D. Pearce
SUBJECT (Right to left): Soil samples BB-RS-40A,B,C; BB-RS-41A,B,C; and BB-RS-42A,B,C. (Front: Level A, Middle: Level B, Back: Level C.)



SITE: Bowers Battery **TDD:** S05-0010-022 **PAN:** 0C2201SIXX **PHOTO:** 10
DATE: November 10, 2000 **DIRECTION:** N/A **PHOTOGRAPHER:** D. Pearce
SUBJECT (Right to left): Soil samples BB-NW-01A,B,C; BB-NW-02A,B,C; and BB-NW-03A,B,C. (Front: Level A, Middle: Level B, Back: Level C.)



SITE: Bowers Battery **TDD:** S05-0010-022 **PAN:** 0C2201SIXX **PHOTO:** 11
DATE: November 10, 2000 **DIRECTION:** N/A **PHOTOGRAPHER:** D. Pearce
SUBJECT (Right to left): Soil samples BB-E-01A,B,C; BB-E-02A,B,C; and BB-E-03A,B,C. (Front: Level A, Middle: Level B, Back: Level C.)



SITE: Bowers Battery **TDD:** S05-0010-022 **PAN:** 0C2201SIXX **PHOTO:** 12
DATE: November 10, 2000 **DIRECTION:** N/A **PHOTOGRAPHER:** D. Pearce
SUBJECT (Right to left): Soil samples BB-S-01A,B,C; BB-S-02A,B,C; and BB-S-03A,B,C. (Front: Level A, Middle: Level B, Back: Level C.)



SITE: Bowers Battery **TDD:** S05-0010-022 **PAN:** 0C2201SIXX **PHOTO:** 13
DATE: November 11, 2000 **DIRECTION:** South **PHOTOGRAPHER:** D. Pearce
SUBJECT: View of the first (pink flags) and second (red flags) "rings" of soil sampling locations in the back yards of 463 and 467 5th Street NW.



SITE: Bowers Battery **TDD:** S05-0010-022 **PAN:** 0C2201SIXX **PHOTO:** 14
DATE: November 11, 2000 **DIRECTION:** South **PHOTOGRAPHER:** D. Pearce
SUBJECT: View of the first (pink flags) and second (red flags) "rings" of soil sampling locations in the back yards of 463 and 467 5th Street NW and the VFW Post 1445 parking lot.



SITE: Bowers Battery **TDD:** S05-0010-022 **PAN:** 0C2201SIXX **PHOTO:** 15
DATE: November 11, 2000 **DIRECTION:** South **PHOTOGRAPHER:** D. Pearce
SUBJECT: View of the first (pink flags) and second (red flags) "rings" of soil sampling locations in the VFW Post 1445 parking lot.



SITE: Bowers Battery **TDD:** S05-0010-022 **PAN:** 0C2201SIXX **PHOTO:** 16
DATE: November 11, 2000 **DIRECTION:** South **PHOTOGRAPHER:** D. Pearce
SUBJECT: View of the first (pink flags) and second (red flags) "rings" of soil sampling locations in the VFW Post 1445 parking lot.



SITE: Bowers Battery **TDD:** S05-0010-022 **PAN:** 0C2201SIXX **PHOTO:** 17
DATE: November 11, 2000 **DIRECTION:** East **PHOTOGRAPHER:** D. Pearce
SUBJECT: View of the back yard of 467 Park Avenue NW. The last four locations for both the first (pink) and second (red) "rings" of soil sampling locations surrounding the overturned soil are indicated by the flags.



SITE: Bowers Battery **TDD:** S05-0010-022 **PAN:** 0C2201SIXX **PHOTO:** 18
DATE: November 11, 2000 **DIRECTION:** South **PHOTOGRAPHER:** D. Pearce
SUBJECT: View of the south transect (sampling locations S-01, S-02, and S-03) which runs from BB-PL-35 at the VFW BBQ shelter to just before Park Avenue at the VFW entrance. This transect is approximately 200 feet in length.



SITE: Bowers Battery **TDD:** S05-0010-022 **PAN:** 0C2201SIXX **PHOTO:** 19
DATE: November 11, 2000 **DIRECTION:** Northwest **PHOTOGRAPHER:** D. Pearce
SUBJECT: View of the northwest transect (sampling locations NW-01, NW-02, and NW-03) which runs from BB-RS-24 to the survey stake for the property corner of 467 5th Street NW. This transect is approximately 126 feet in length.



SITE: Bowers Battery **TDD:** S05-0010-022 **PAN:** 0C2201SIXX **PHOTO:** 20
DATE: November 11, 2000 **DIRECTION:** West **PHOTOGRAPHER:** D. Pearce
SUBJECT: View of soil sampling location BB-F-01 in the back yard of 463 5th Street NW at the house foundation between the basement window well and the rear door/patio.



SITE: Bowers Battery **TDD:** S05-0010-022 **PAN:** 0C2201SIXX **PHOTO:** 21
DATE: November 11, 2000 **DIRECTION:** Northwest **PHOTOGRAPHER:** D. Pearce
SUBJECT: View of soil sampling location BB-F-02 in the back yard of 467 5th Street NW at the house foundation between the downspout from the gutter and the basement window well.



SITE: Bowers Battery **TDD:** S05-0010-022 **PAN:** 0C2201SIXX **PHOTO:** 22
DATE: November 11, 2000 **DIRECTION:** East **PHOTOGRAPHER:** D. Pearce
SUBJECT: View of the front yard of 463 5th Street NW (sampling locations RS-43, RS-44, and RS-45).



SITE: Bowers Battery **TDD:** S05-0010-022 **PAN:** 0C2201SIXX **PHOTO:** 23
DATE: November 11, 2000 **DIRECTION:** East **PHOTOGRAPHER:** D. Pearce
SUBJECT: View of the front yard of 467 5th Street NW (sampling locations RS-40, RS-41, and RS-42).



SITE: Bowers Battery **TDD:** S05-0010-022 **PAN:** 0C2201SIXX **PHOTO:** 24
DATE: November 11, 2000 **DIRECTION:** North **PHOTOGRAPHER:** D. Pearce
SUBJECT: View of START member collecting soil from sampling location BB-N-01B at the north transect which runs from BB-PL-26 to the corner of the brick building in the background. This transect is approximately 100 feet in length.